

IN THE CLAIMS

Please amend the claims as follows:

1. (Original) An apparatus comprising:
a transparent plate with an upper surface; and
a plurality of spaced apart fiducials formed on the upper surface at locations
corresponding to desired die locations.
2. (Original) The apparatus of claim 1, wherein the transparent plate is
glass.
3. (Original) The apparatus of claim 2, wherein the glass is quartz.
4. (Original) The apparatus of claim 1, wherein the fiducials are formed by
electron-beam lithography.
5. (Original) The apparatus of claim 1, wherein the spaced apart fiducials
have a placement accuracy equal to or less than 2 microns, 3 sigma.
6. (Currently amended) An apparatus comprising:
a transparent plate having fiducials on a surface, the transparent plate
adapted to be positioned beneath a panel having a plurality of transparent segments
so that a die suspended above the panel and having a die alignment mark can be
aligned and positioned on one of the transparent segments relative to at least one of
the fiducials.
7. (Original) The apparatus of claim 6, wherein the transparent plate is
made of glass.
8. (Original) The apparatus of claim 7, wherein the glass is quartz.

9. (Original) The apparatus of claim 6, wherein the fiducials are chrome.
10. (Currently amended) An apparatus comprising:
a movable pick-up head capable of holding, positioning and releasing a die,
the die having an alignment mark;
a panel support member adapted to movably support a panel in a panel
support plane, the panel having upper and lower surfaces and an array of cavities
each open at the upper surface and each having a transparent bottom;
a transparent plate with fiducials arranged at locations corresponding to
desired die locations on the transparent bottoms of the cavities of the panel, the
transparent plate arranged adjacent the panel support plane opposite the panel from
the movable pick-up head; and
an optical vision system adapted to image a die through the transparent plate
and through the transparent bottom of one of the cavities and to image at least one
fiducial and generate an electrical signal corresponding to the position of the at least
one fiducial.
11. (Original) The apparatus of claim 10, further including a controller
electrically connected to the pick-up head and the optical vision system, the
controller adapted to control the movement of the pick-up head in response to the
electrical signal.
12. (Original) The apparatus of claim 10, wherein the transparent plate is
made of glass.
13. (Original) The apparatus of claim 11, wherein the glass is quartz.
14. (Original) The apparatus of claim 10, wherein the fiducials are formed
by electron-beam lithography.

15. (Currently amended) A method comprising:

providing a panel with a plurality of cavities, each cavity including an opening to a panel upper surface and a transparent bottom at a panel lower surface;

arranging adjacent the panel lower surface a transparent plate having an upper surface with a plurality of fiducials formed thereon, with at least one fiducial aligned with the each cavity transparent bottom and serving as a local fiducial; and

imaging the local fiducial to align the a die to one of the cavity plurality of cavities.

16. (Original) The method of claim 15, further including determining a position of the die relative to the local fiducial based on said imaging.

17. (Original) The method of claim 16, including generating an electrical signal corresponding to the die position relative to the local fiducial.

18. (Original) The method of claim 17, further including aligning the die with the local fiducial.

19. (Original) The method of claim 18, further including:

inserting the die into the opening of the cavity associated with the local fiducial; and

contacting the die to the transparent bottom.

20. (Original) The method of claim 15, including forming the fiducials using electron-beam lithography.

21. (Original) A method comprising:

forming fiducials on an upper surface of a transparent plate;

arranging the transparent plate relative to a panel having multiple cavities formed in a panel upper surface, with each cavity having a transparent bottom, said arranging including aligning each fiducial beneath a corresponding one of the multiple cavities; and

imaging a select one of the fiducials corresponding to a select one of the cavities to establish a die position relative to the select one of the cavities.

22. (Original) The method of claim 21, including making the transparent bottom adhesive.

23. (Original) The method of claim 21, including aligning the die alignment mark to the select fiducial.

~~23. (second instance cancelled) The method of claim 23, further including placing the die onto the transparent bottom of the select cavity.~~

24. (Original) The method of claim 21, including imaging the die alignment mark through the transparent bottom.

25. (New) The method of claim 23, further including placing the die onto the transparent bottom of the select cavity.

26. (New) An apparatus comprising:
a panel support member adapted to support a panel in a panel support plane, the panel having upper and lower surfaces and an array of cavities each open at the upper surface and each having a transparent bottom; and
means for aligning a die with respect to one of the cavities.

27. (New) The apparatus of claim 26, wherein the means for aligning further comprises:

transparent fiducial means for providing alignment indicia; and

optical imaging means for obtaining position data for the die and the alignment indicia.

28. (New) The apparatus of claim 27, wherein the optical imaging means obtains images through the transparent fiducial means and the transparent bottom.
